CLAIMS

What is claimed is:

1. A method, comprising:

applying an adhesive gel material to at least a portion of a first side of a semiconductor wafer having first and second sides;

positioning the semiconductor wafer on to a platform with the first side facing the platform and with the adhesive gel material between the first side and the platform to allow the adhesive gel material to hold the semiconductor wafer to the platform;

grinding the second side of the semiconductor wafer; and

allowing the adhesive gel material to release the semiconductor wafer from the platform.

2. The method of claim 1 wherein allowing the adhesive gel material to hold the semiconductor wafer to the platform comprises using an adhesive property of the adhesive gel material to hold the semiconductor wafer to the platform.

3. The method of claim 2, wherein the platform includes a vacuum, and wherein using the adhesive property to hold the semiconductor wafer to the platform includes holding the semiconductor wafer in position using the adhesive gel material with the vacuum substantially turned off.

4. The method of claim 2 wherein using the adhesive property to hold the semiconductor wafer to the platform includes providing substantial surface contact between the adhesive gel material and the first side of the wafer.

5. The method of claim 1, wherein allowing the adhesive gel material to release the semiconductor wafer from the platform includes applying a vacuum to the gel material to substantially pull the adhesive gel material off the first side of the semiconductor wafer.

6. The method of claim 1 wherein applying the adhesive gel material to at least a portion of the first side of the semiconductor wafer includes applying the adhesive gel material to an upper surface of an un-diced semiconductor wafer.

7. The method of claim 6, further comprising after grinding the second side of the semiconductor wafer, which comprises a lower surface of the semiconductor wafer:

washing the semiconductor wafer;

mounting the semiconductor wafer; and

dicing the semiconductor wafer.

8. The method of claim 1, wherein applying the adhesive gel material to the first side of the semiconductor wafer includes applying the adhesive gel material to an upper surface of at least a partially-diced semiconductor wafer.

9. The method of claim 8, further comprising after grinding the second side of the semiconductor wafer, which comprises a lower surface of the semiconductor wafer, mounting the semiconductor wafer that has had its lower surface grinded.

10. The method of claim 1, wherein applying the adhesive gel material to the first side of the semiconductor wafer includes applying the adhesive gel material to an upper surface of a flip chip bump wafer or non-bump wafer

11. The method of claim 1 wherein applying the adhesive gel material includes applying a gel material including semi-solid particles.

12. The method of claim 11 wherein allowing the adhesive gel material to release the semiconductor wafer from the platform includes applying a vacuum to draw the membrane away from the first side of the semiconductor wafer

13. The method of claim 1 wherein applying the adhesive gel material to the first side of the semiconductor wafer includes applying the adhesive gel material to an upper surface of a semiconductor wafer having surface structures.

14. The method of claim 13 wherein the surface structures include bumps.

15. The method of claim 13 wherein the surface structures include electronic circuitry.

16. A method, comprising:

applying a gel material to a first side of a semiconductor wafer, having first and second sides, to provide substantial surface contact between the gel material and surface structures on the first side;

placing the wafer on a vacuum chuck with the gel material between the wafer and the vacuum chuck;

grinding the second side while using the gel material to hold the wafer against the vacuum chuck; and

removing the wafer from the vacuum chuck by reducing surface contact between the gel material and the surface structures.

17. The method of claim 16, wherein applying the gel material to the first side of the semiconductor wafer includes applying the gel material to a surface of at least one of a flip-chip bump wafer and a non-bump wafer.

18. The method of claim 16 wherein the surface structures comprise electronic circuitry.

19. The method of claim 16 wherein the surface structures comprise bumps.

20. The method of claim 16 wherein reducing surface contact between the gel material and the surface structures includes activating the vacuum chuck.

21. The method of claim 16 wherein the gel material includes semi-solid particles.

22. The method of claim 16 wherein applying the gel material to the first side of the wafer includes applying a semi-solid material to an upper surface of the wafer, the semi-solid material capable to be prevent substantial collapse of a gel membrane of the gel material into the vacuum chuck.

23. The method of claim 16, further comprising after removing the wafer from the vacuum chuck:

washing the wafer;

mounting the wafer; and

dicing the wafer.

24. The method of claim 16, further comprising dicing the wafer before applying the gel material to the first side of the wafer.

25. The method of claim 24 wherein the wafer is diced to a depth deeper than a final desired depth of the wafer.

26. The method of claim 16, further comprising using a vacuum transfer device to transfer the wafer from the vacuum chuck onto a surface for mounting.

27. The method of claim 16 wherein grinding the second side of the wafer while using the gel material to hold the wafer against the vacuum chuck includes absorbing at least some of a grinding force applied to the second side of the wafer.

28. A material, comprising:

an adhesive gel material;

semi-solid particles within the adhesive gel material; and

wherein the adhesive gel material forms a membrane surface to hold a first side of a semiconductor wafer to a surface of a vacuum chuck during wafer grinding of a second side of the semiconductor wafer.

29. The material of claim 28 wherein the semi-solid particles within the adhesive gel material form a structure to substantially prevent the membrane surface from collapsing to the surface of the vacuum chuck when the vacuum chuck is activated.

30. The material of claim 28 wherein the semi-solid particles within the adhesive gel material includes organic particles.